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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,243	01/23/2004	Takemori Takayama	KOM-0153/INO/DIV 2	4520

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RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER
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SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/762,243

Applicant(s)

TAKAYAMA ET AL.

Examiner

Jason L. Savage

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6 and 8-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 8-12 and 14-22 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7-10-06 has been entered.

***Claim Rejections - 35 USC § 102/103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 6, 8-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, obvious over Takayama'549 et al (US 5,948,549).

Takayama'549 teaches a copper based sintered contact material which is sinter bonded to an iron-base material (col. 1, ln. 7-11). Takayama'549 further teaches the contact may be a copper-based alloy which contains multiple intermetallic forming materials (col. 5, Table 1; col. 9, Table 3; col. 11, Table 4). Takayama'549 teaches the inclusion of many of the elements from Applicant's claimed group of elements capable of forming intermetallics including Cu, Sn, Mn, Cr, Mo and W (Table 4 and Col. 8, ln. 9-13). Takayama'549 further recites that intermetallics of CuSn may be added in amounts such as 10 weight % (col. 5, Table 1 and col. 9 table 3).

Takayama'549 is silent to the amount of intermetallic materials such as CuSn in terms of their volume %. However, given Applicant's disclosure in the first full paragraph on page 34 of the instant specification that the intermetallic compound should be limited to 10% or less by volume or 10% or less by weight, Takayama'549 is viewed to meet the claims. In the alternative, it would have been obvious.

Regarding claim 8, Takayama'549 teaches that non-metallic particles may be contained in the contact including oxides in amounts as low as 0.2 and up to 1.9 wt % which would fall within Applicant's claimed range for the non-metallic particles (col. 5, Table 1, No. 20-26. Although Takayama'549 does not exemplify an embodiment wherein the intermetallic content is within the claimed range which also contains the non-metallic particles, Takayama'549 teaches the addition of non-metallic particles with sufficient specificity as to anticipate the claim limitations. In the alternative, it would have been obvious.

Regarding claim 9, Takayama'549 teaches that Mo, Co, Fe may be dispersed in an amount within the range claimed by Applicant (col. 7, Table 2, No. 8-10 and 14). Although Takayama'549 does not exemplify an embodiment wherein the intermetallic content is within the claimed range which also contains the claimed metal and/or alloy particles, Takayama'549 teaches the addition of the claimed metallic materials within the range claimed with sufficient specificity as to anticipate the claim limitations. In the alternative, it would have been obvious.

Regarding claim 10, Takayama'549 teaches that graphite may be contained in an amount less than 1 wt% (col. 5, Table 1, No 14-15).

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Regarding claim 12, Takayama'549 teaches that the contact contain Sn and Pb such as having 2% Sn and 5% Pb as disclosed in example 6 (col. 5, Table 1).

Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama'549 et al (US 5,948,549)

Regarding claims 14 and 19, Takayama'549 teaches that other elements such as Mn, Be and Ag may be added to the contact material (col. 16, ln. 17-60), although it is silent to the addition of lubricating particles such as those claimed. However, the use of solid lubricating particles in copper sintered contact materials is known and conventionally practiced in the art. It would have been obvious to one of ordinary skill in the art to have used known additives such as solid lubricants in the contact material order to improved the overall resistance to seizure of the sintered contact.

Regarding claim 15, Takayama'549 is silent to the sintered contact being a double-layered contact however, sintered double-layered contacts are structure that are well known in the art. Absent a teaching of the criticality of the contact being a double-layered contact, it would not provide a patentable distinction over the prior art since it would have been within the level of one of ordinary skill in the art to have formed the contact of Takayama'549 into any known contact structure, including a double-layered contact, with a reasonable expectation of success.

Regarding claim 16, Takayama'549 teaches that P is preferably contained in an amount of 0.1 to 1.0 wt% (col. 8, ln. 1-8). Takayama'549 further teaches that other elements such as Cr, Si, Al and Ti may be added as well (col. 10, ln. 1 – col. 10, ln. 25).

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Regarding claim 17, the non-metallic particles disclosed by Takayama'549 would restrain shrinkage of the sintered layer just as much as the non-metallic particles claimed by Applicant.

Regarding claim 18, Takayama'549 teaches that Cu-33Sn may be added to provide enhanced expansion to the sintered contact (col. 14, ln. 44-61). Takayama'549 also teaches the addition of Sn primary powder (col. 11, Table 4, No 18-25). It would have been obvious to have used both the High Sn containing copper and primary Sn powder since Takayama'549 teaches both are suitable for use.

Regarding claims 20-21, Takayama'549 teaches that the sintered contact may contain non-metallic particles such as graphite, oxides, carbides and nitrides (col. 4, ln. 43-48). Takayama'549 is silent to teaching the total volume percent of the carbides and nitrides which may be added. However, given the teaching of the amount of non-metallic particles being from as low as 0.2 and up to 1.9 wt% (col. 5, Table 1, No. 14-26), it would have been obvious to one of ordinary skill in the art to have added carbides and/or nitrides in a similar amount. Although Takayama'549 teaches the amounts of materials in terms of their weight % as opposed to the claimed volume %, it is the position of the Examiner that the ranges would overlap.

Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama'549 et al (US 5,948,549) as evidenced by Takayama'775 (US 6,015,775).

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Takayama'549 teaches a copper based sintered contact material containing a variety of materials including graphite; however it is silent to the particle size of the graphite materials. Takayama'775 teaches a copper based sintered contact material (col. 4, ln. 15-23) which may contain solid lubricant particles such as graphite (col. 3, ln. 16-47). Takayama'775 further teaches that the particle size of the solid lubricant particles may be between 100 and 3000  $\mu\text{m}$  (col. 3, ln. 17-29). Although Takayama'775 teaches that the solid lubricants are intended to protrude from the contact surface in order to provide a self-lubricating sintered sliding member whereas Takayama'549 is silent to the positioning of the particles, Takayama'775 is merely being provided as evidence that the use of solid lubricant particles having sizes within the range claimed is known in the art.

In response to the issue whether the reference is nonanalogous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, *In re Wood*, 202 USPQ 171, 174. In the instant case, both Takayama'549 and Takayama'775 are generally drawn to copper based sintered contact materials containing solid lubricant particles. Absent a teaching of the criticality of the particles being within the range claimed by Applicant, it does not provide a patentable distinction over the prior art since the use of solid particles having a size of 100  $\mu\text{m}$  is known and would have been an obvious design choice to one of ordinary skill in the art.

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Regarding the limitation in claim 22 that the particle size is 70  $\mu\text{m}$ , as above, absent a teaching of the criticality of the particle sizes being within the claimed range, it does not provide a patentable distinction over the prior art since the selection of a particular particle size would be an obvious design choice to one of ordinary skill in the art.

### ***Allowable Subject Matter***

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 7-10-06 have been fully considered but they are not persuasive.

### **CLAIM REJECTIONS – 35 U.S.C. 102**

Applicant argues that Takayama'549 fails to disclose, teach or suggest the total amount of intermetallics compounds being equal to 0.1 to 10% by volume. Applicant further states that since the Action conceded that 'Takayama'549 is silent as to the volume% of intermetallic in the contact', that the 102 rejection of the claims is rendered ineffective.

Applicant argues that the Examiner's prior assertion that intermetallics of the recited materials would likely be present within the claimed range was highly unlikely and set forth reasoning for why this would be the case. As such, the reasoning for



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asserting intermetallics of the recited materials has been withdrawn. However, as was set forth in the rejection above, Takayama'549 teaches the addition of other of the claimed intermetallic materials such as CuSn in an amount within the range claimed by Applicant.

**CLAIM REJECTIONS – 35 U.S.C. 103**

Applicant argues the rejection to claim 11 lacks the proper suggestion or motivation to make the recited combination. Applicant recites that Takayama'775's reasoning for including solid lubricant particles of the recited size and in the amounts recited clearly teach away from the limitations recited in claim 11.

However, Takayama'549 teaches that solid lubricant particles such as graphite are added to the contact with content within the range claimed by Applicant. Takayama'549 merely lacks guidance on what possible particle sizes for the solid lubricant may be employed. Takayama'775 is merely provided as a showing that the use of lubricant particle having sizes within the range claimed is known in the art and as such, would have been obvious absent a teaching of the criticality or showing of unexpected results due to the use of particles having the claimed size.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason Savage  
10-12-06



JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER  
10/13/06